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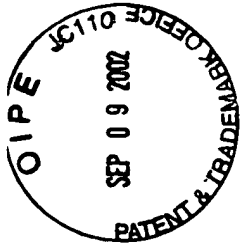
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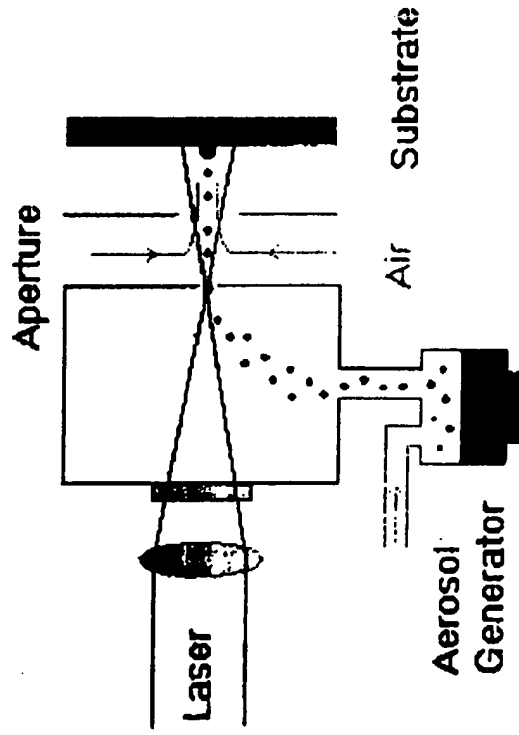
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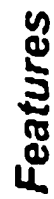
2005050-50922001



Features

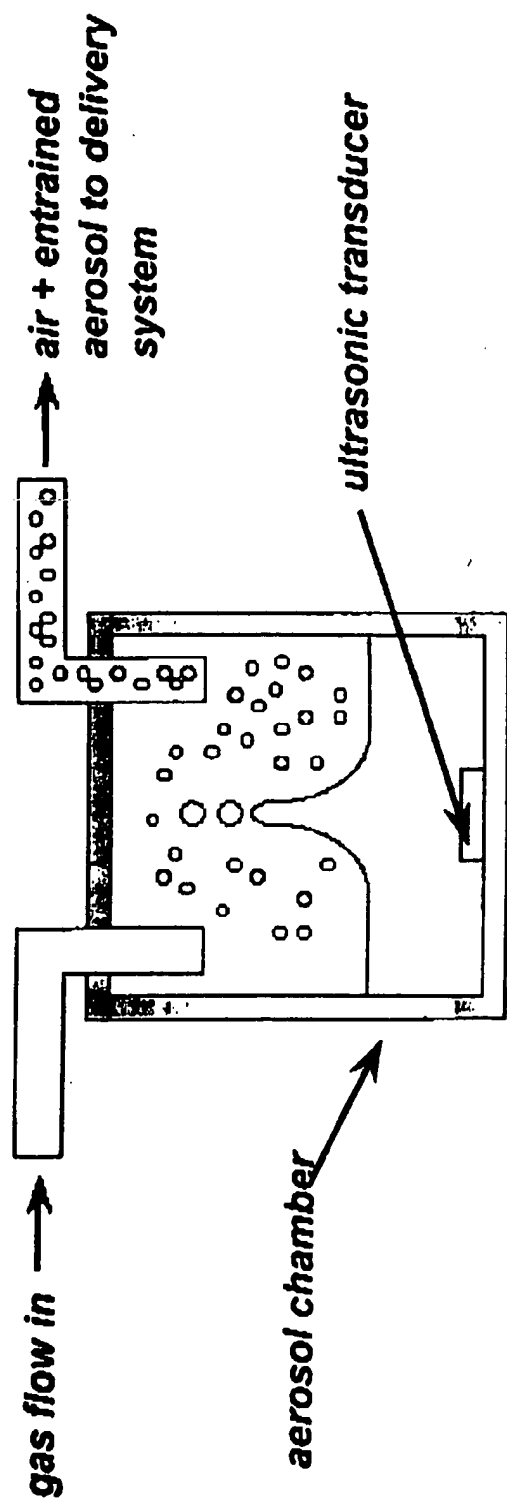
- High Velocity ($\sim 10\text{m/s}$)
- Variable Beam Diameter ($10\text{ }\mu\text{m}$)
- High Throughput ($\sim 10^9\text{ s}^{-1}$ in $100\text{ }\mu\text{m}$ beam)
- Reduced Clogging
- Long Working Distance ($\sim \text{few cm}$)
- Simultaneous Laser Treatment

FIG. 1



- Small droplets ($\sim 1 \mu\text{m}$)
- Dense aerosols ($\sim 10^{16} \text{ m}^{-3}$)
- Accuracy to $3 \mu\text{m}$
- Single particle to 10^9 particles/s
- Throughput to $0.25 \text{ mm}^3/\text{s}$
- Low power ($\sim 50 \text{ mW}$)
- High scan rate ($\sim 1 \text{ m/s}$)
- = Dense, conductive materials ($\rho \sim 2 \times \text{bulk}$)

FIG. 2



- Small droplets ($\sim 1 \mu\text{m}$, 1 fL)
- Dense aerosols ($\sim 10^{16} \text{ m}^{-3}$)
- 100 μL minimum sample
- All solids, all precursors, or solid/precursor mixtures
- Precursor based alloys with atomic scale mixing
- Organic and biological entities in droplets (enzymes, proteins, virus, etc.)

FIG. 3



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Air Jet

Compressed AirJet

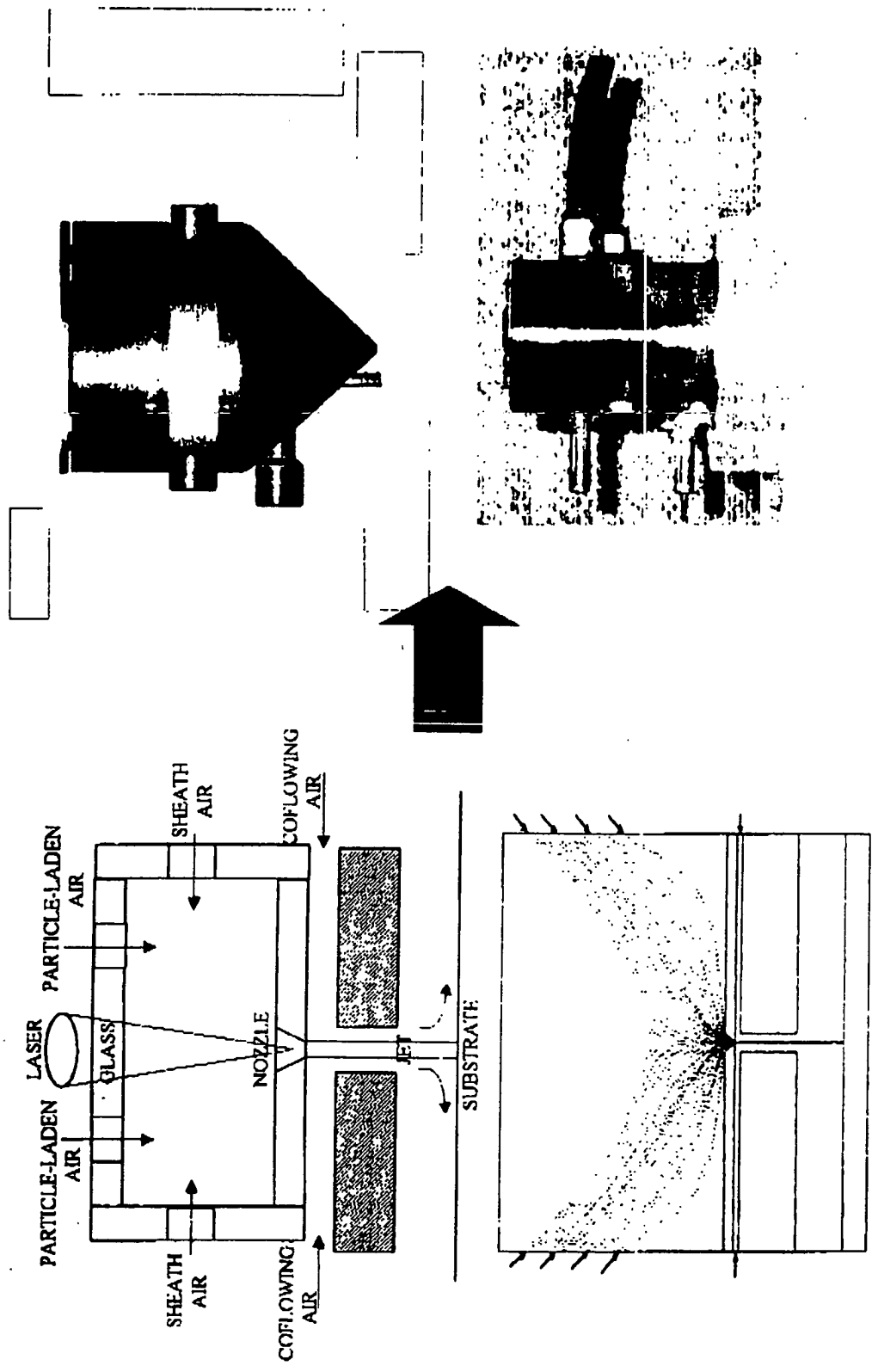
- Large Particles (1-30 μm)
- High Viscosity Fluids
- Particles + Precursor binder
- Animal Cells + Media
- Bacteria
- Virus

Particulate in Suspension

FIG. 4

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FIG. 5



Cascade Impaction

Gas stream carrying
various size particles

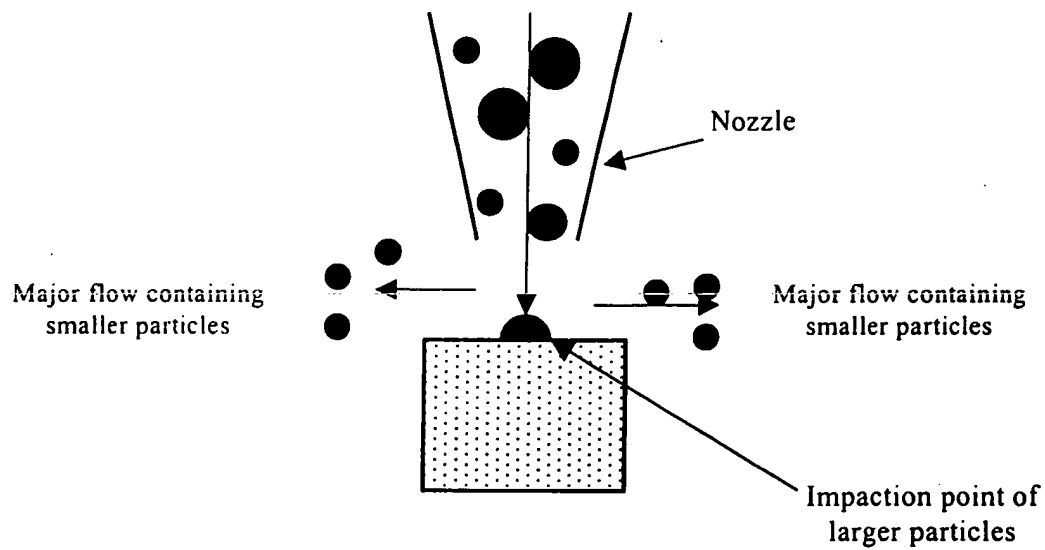


FIG. 6

20060605090902

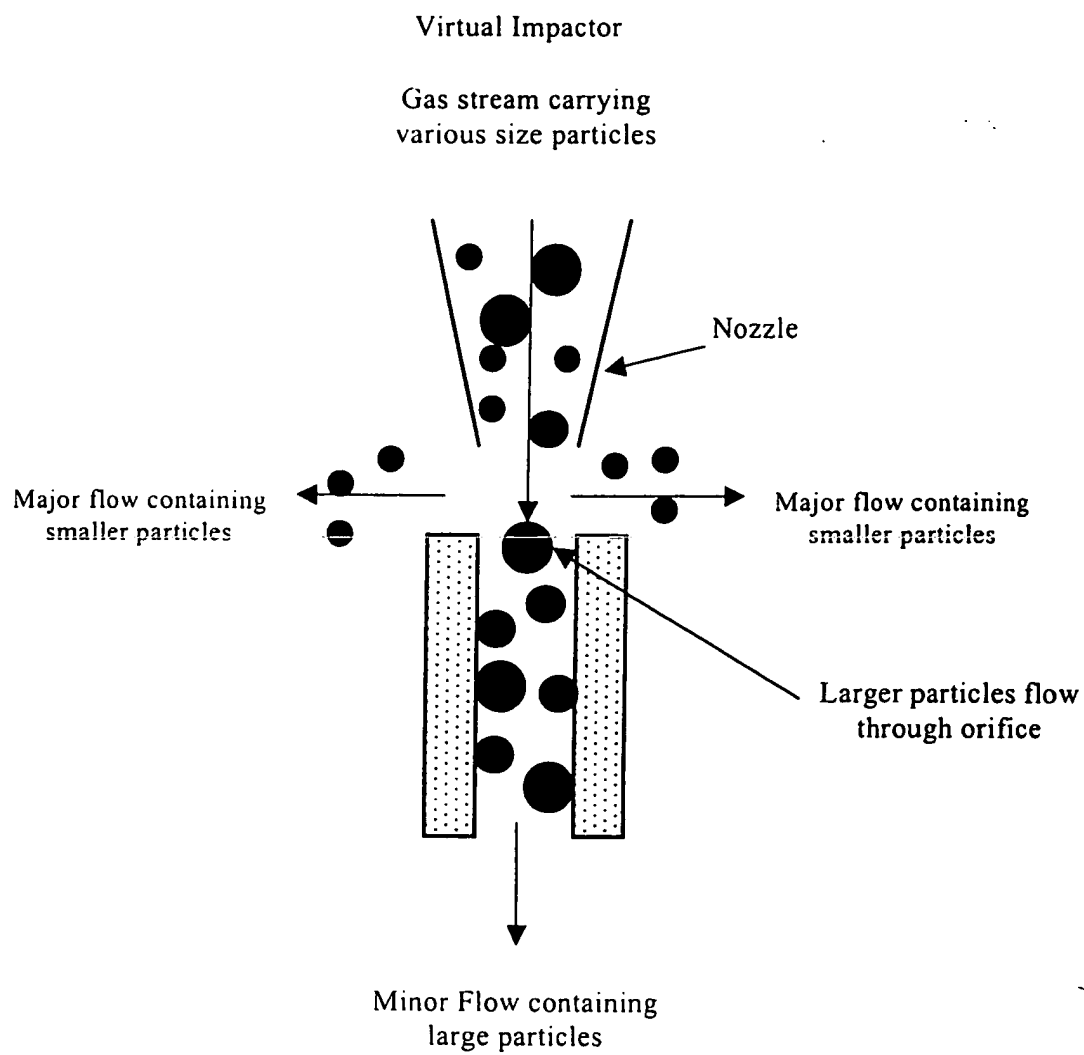


FIG. 7

Virtual Impactors in Series

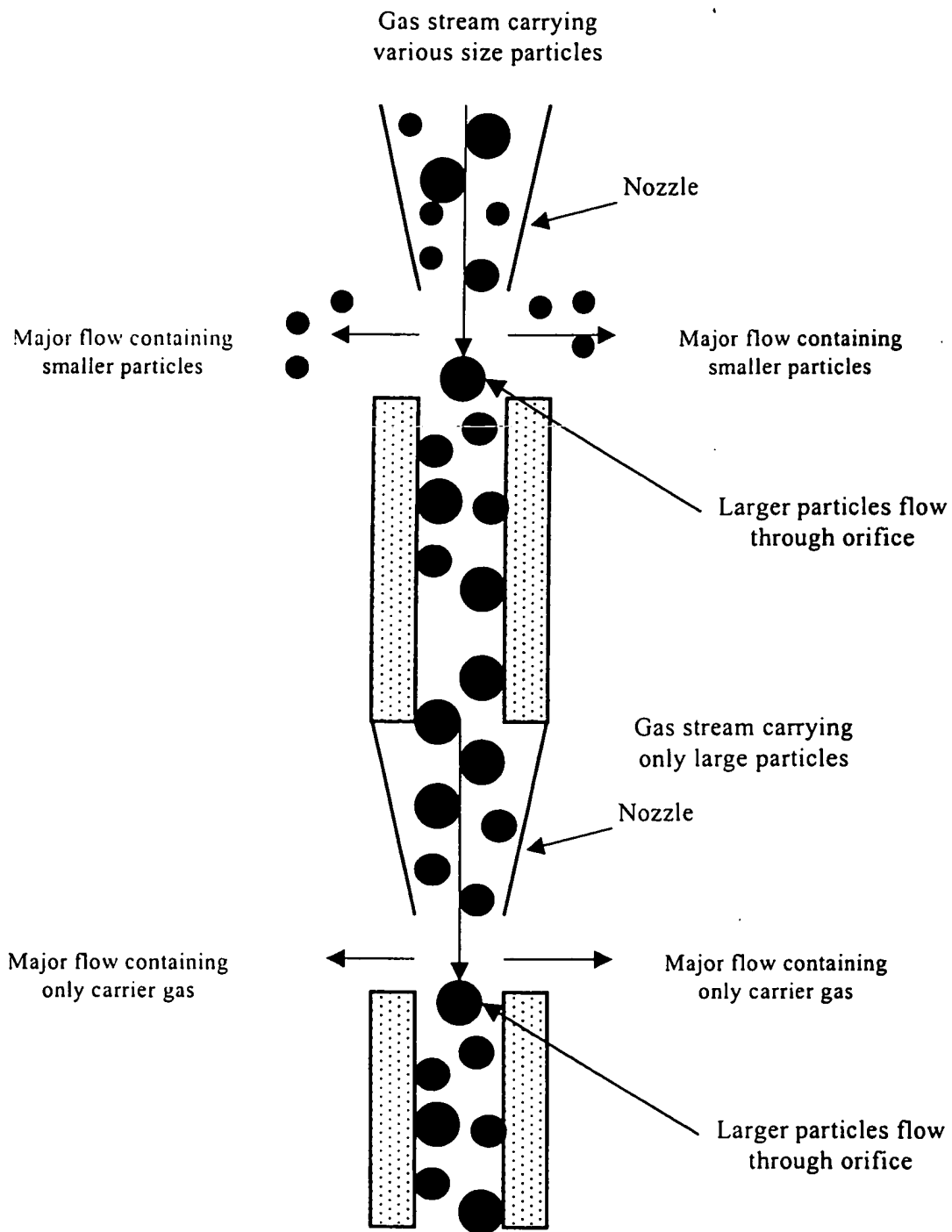


FIG. 8

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Gas stream carrying only large particles from the atomizing unit

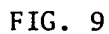
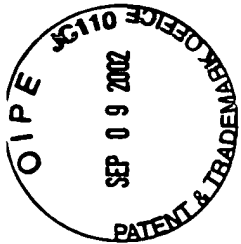


FIG. 9



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Flow Guidance Delivery System

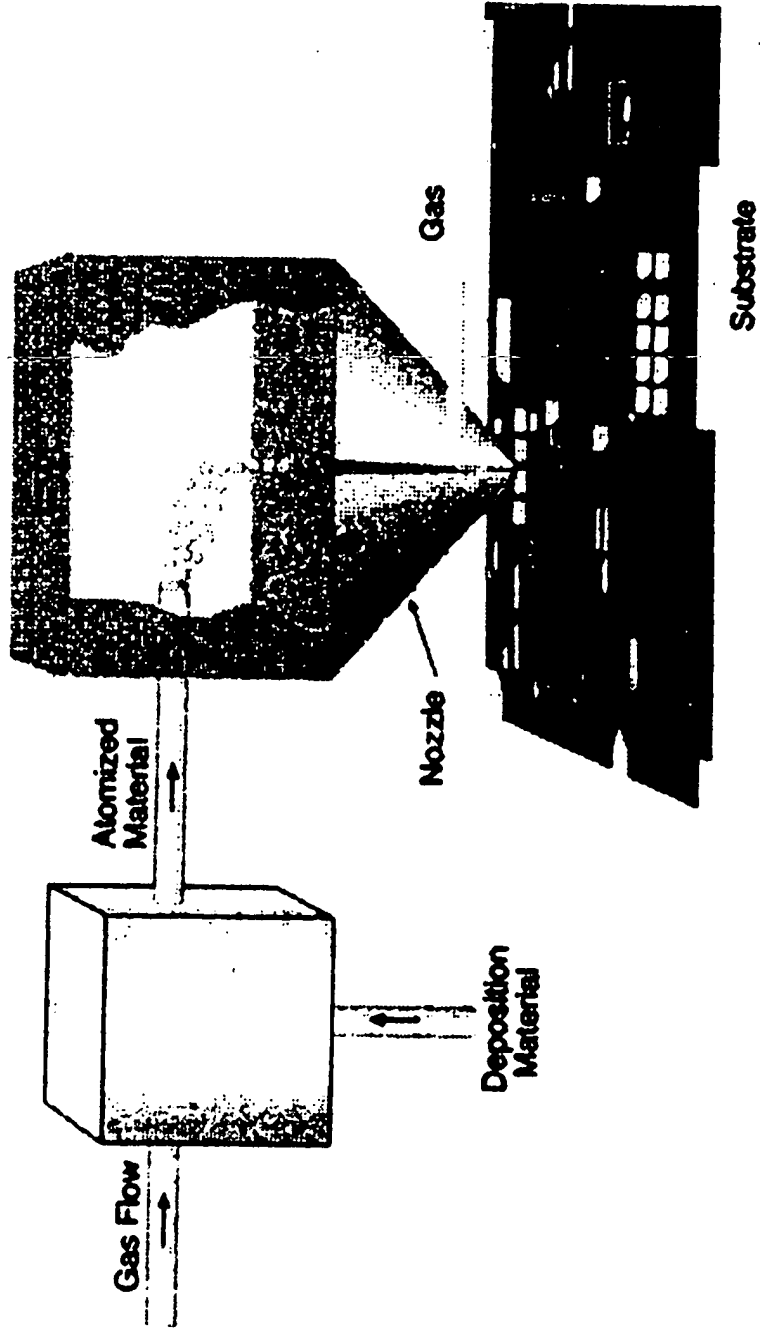


FIG. 10

Aerosol Stream

Sheath Gas

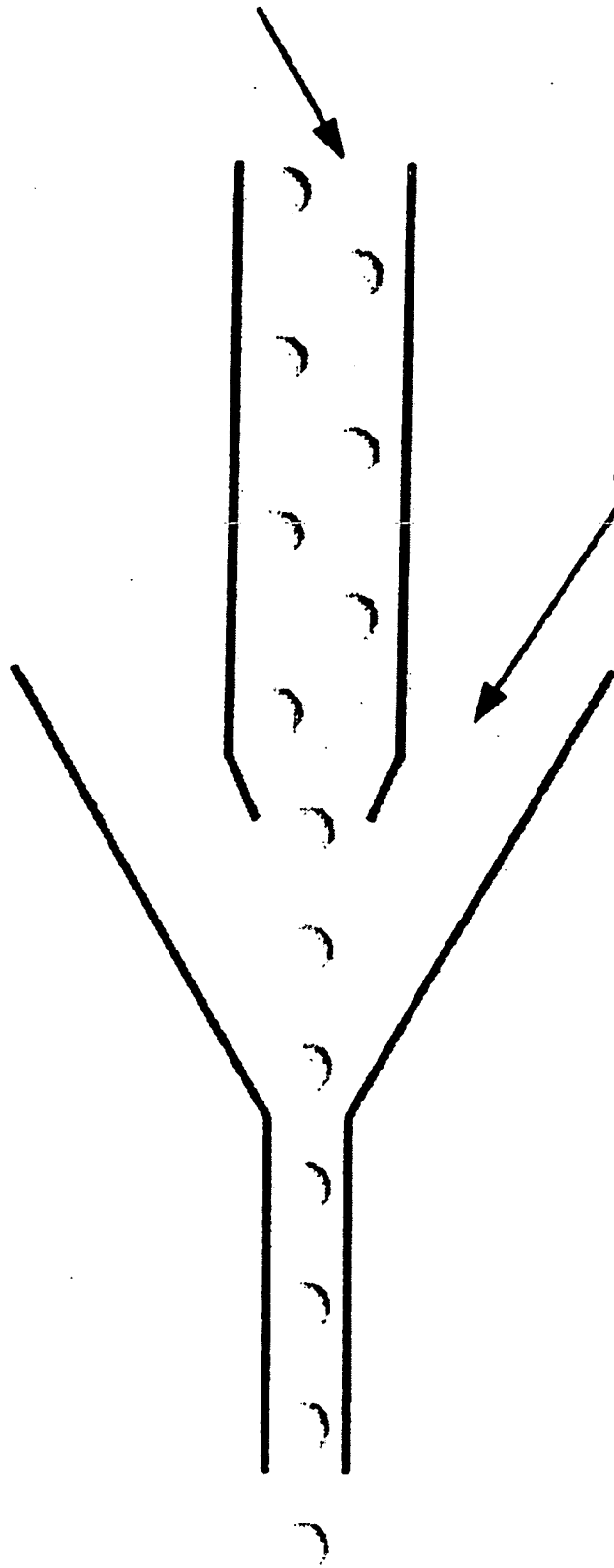
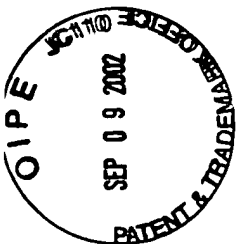


FIG. 11

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FIG. 12

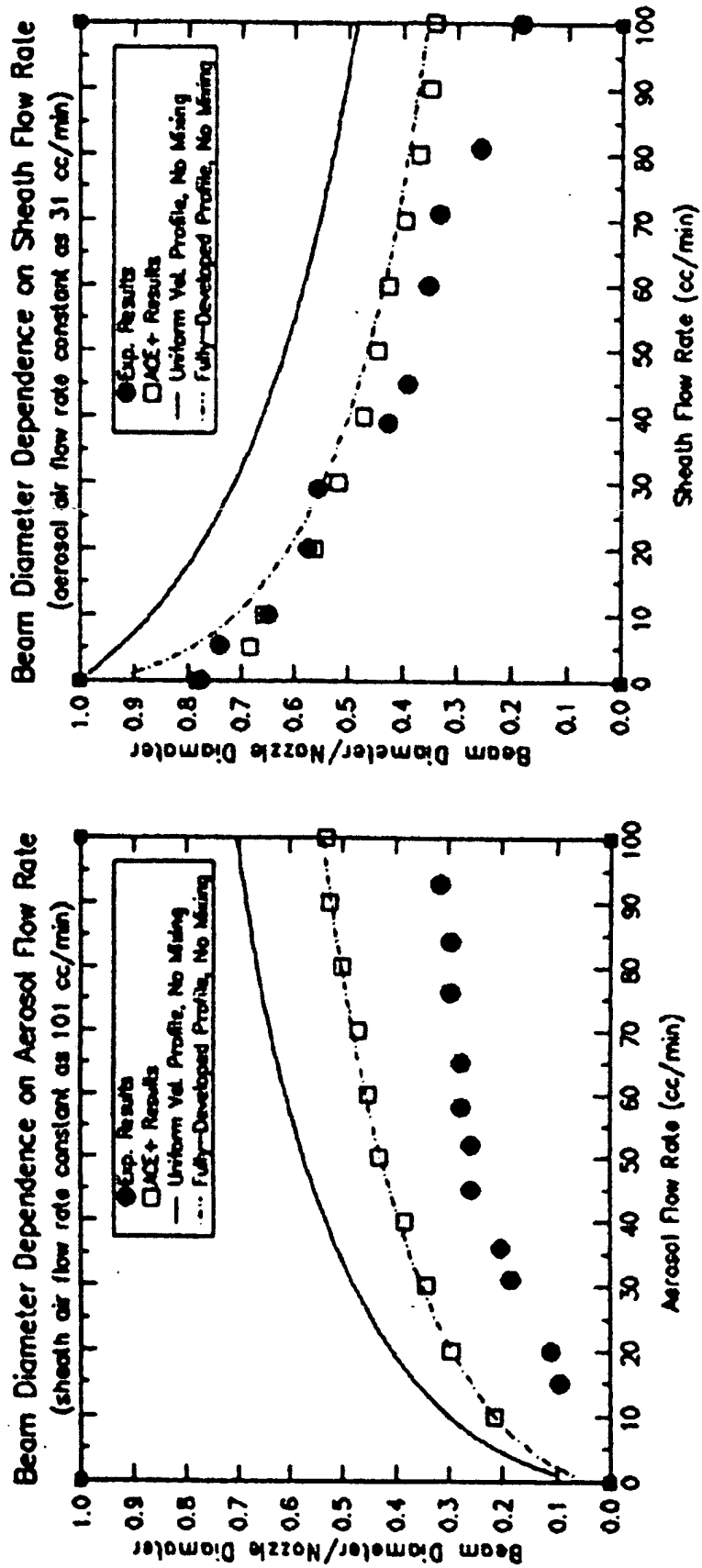
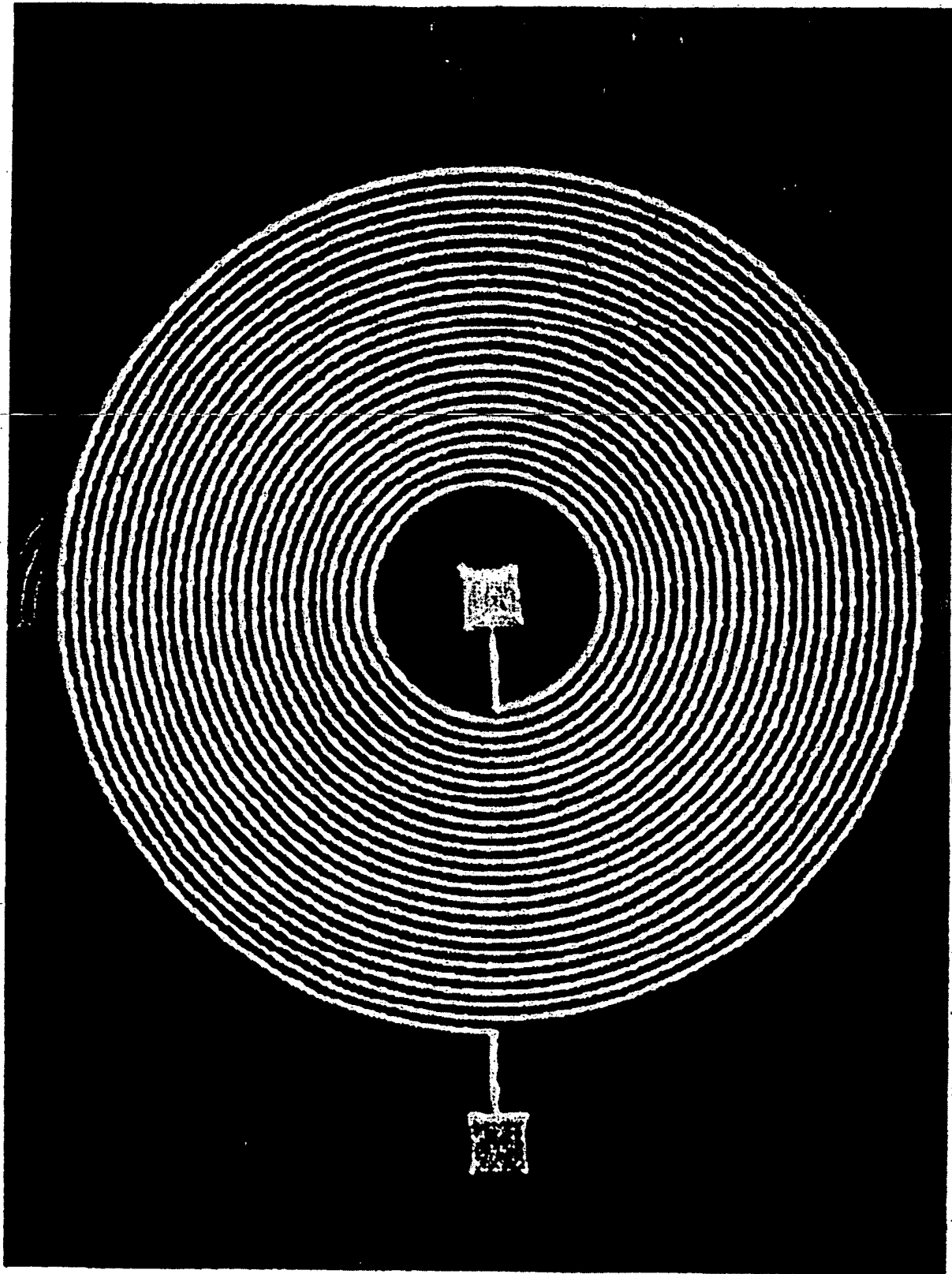


FIG. 13



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Step One - Parallel Ag Lines

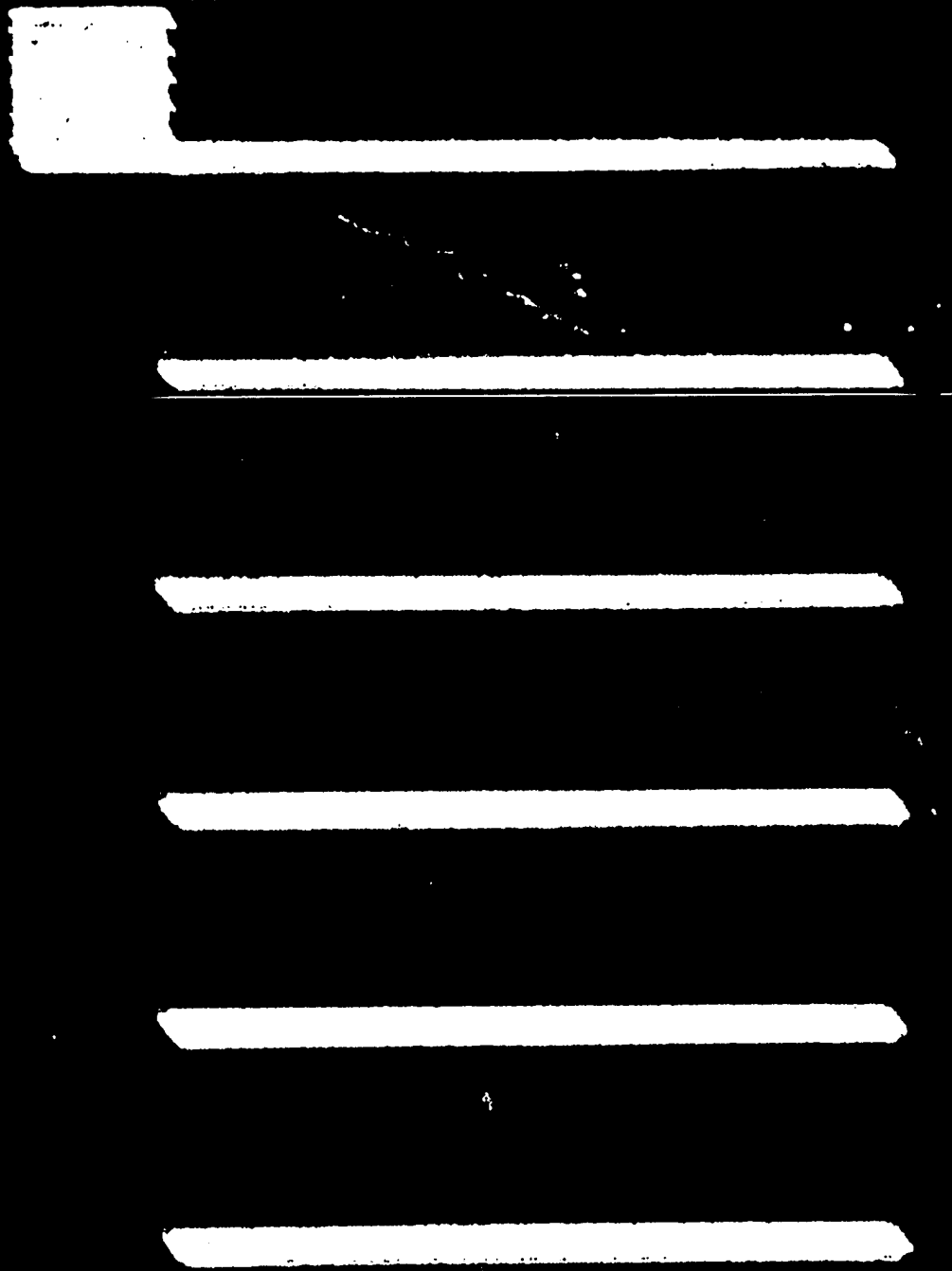


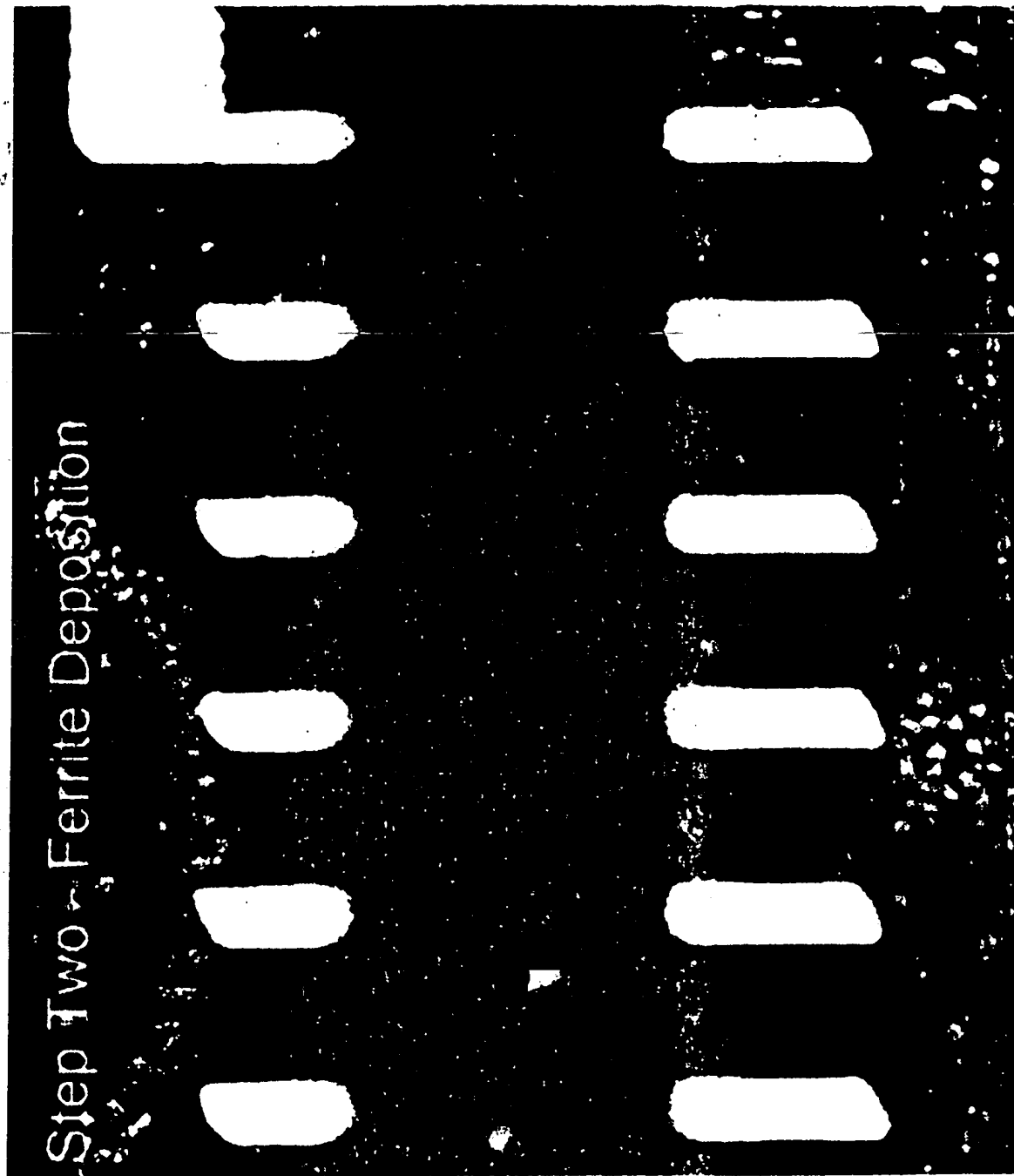
FIG. 14

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FIG. 15



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FIG. 16

Step Three - Connecting Ag Lines



FIG. 17

